# College of Public Health News

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# Association of Cardiac Events with Coronary Artery Disease

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A collaborative study including Dr. Ryan Butterfield, DrPH alumni of the Jiann-Ping Hsu College of Public Health at Georgia Southern University and Dr. Phillip Habib now of the Mayo Clinic-Jacksonville, examined the association of cardiac events with coronary artery disease detected by 64-slice or greater coronary CT angiography: a systematic review and meta-analysis. The value of ≥64-slice coronary CT angiography (CCTA) to determine odds of cardiac death or non-fatal myocardial infarction (MI) needs further clarification. We performed a systematic review and meta-analysis using publications reporting events/severity of coronary artery disease (CAD) in patients with suspected CAD undergoing CCTA. At date of publication, this is the largest meta-analysis conducted on this subject. Patients were divided into: no CAD, non-obstructive CAD (maximal stenosis <50%), and obstructive CAD (≥50% stenosis). Odds ratios with 95% confidence intervals were calculated using a fixed or random effects model. Heterogeneity was assessed using the I(2) index.

We included thirty-two studies comprising 41,960 patients with 363 all-cause deaths (15.0%), 114 cardiac deaths (4.7%), 342 MI (14.2%), 69 unstable angina (2.8%), and 1527 late revascularizations (63.2%) over 1.96 (SD 0.77) years of follow-up. Cardiac death or MI occurred in 0.04% without, 1.29% with non-obstructive, and 6.53% with obstructive CAD. OR for cardiac death or MI was: 14.92 (95% CI, 6.78 to 32.85) for obstructive CAD, 6.41 (95% CI, 2.44 to 16.84) for non-obstructive CAD versus no CAD, and 3.19 (95% CI, 2.29 to 4.45) for non-obstructive versus obstructive CAD and 6.56 (95% CI, 3.07 to 14.02) for no versus any CAD. Similar trends were noted for all-cause mortality and composite major adverse cardiovascular events.

Increasing CAD severity detected by CCTA is associated with cardiac death or MI, all-cause mortality, and composite major adverse cardiovascular events. Absence of CAD is associated with very low odds of major adverse events, but non-obstructive disease significantly increases odds of cardiac adverse events in this follow-up period.

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